

**Notification of Non-Compliant Appeal Brief
(37 CFR 41.37)**

JUN 16 2005

Application No.

09/899,878

Applicant(s)

MARTIN, FRANCOIS

Examiner

Y. Lee

Art Unit

2613

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

The Appeal Brief filed on 13 May 2005 is defective for failure to comply with one or more provisions of 37 CFR 41.37.

To avoid dismissal of the appeal, applicant must file a complete new brief in compliance with 37 CFR 41.37 within **ONE MONTH or THIRTY DAYS** from the mailing date of this Notification, whichever is longer. **EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136.**

1. ☐ The brief does not contain the items required under 37 CFR 41.37(c), or the items are not under the proper heading or in the proper order.
2. ☐ The brief does not contain a statement of the status of all claims, (e.g., rejected, allowed or confirmed, withdrawn, objected to, canceled), or does not identify the appealed claims (37 CFR 41.37(c)(1)(iii)).
3. ☐ At least one amendment has been filed subsequent to the final rejection, and the brief does not contain a statement of the status of each such amendment (37 CFR 41.37(c)(1)(iv)).
4. ☒ (a) The brief does not contain a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings, if any, by reference characters; and/or (b) the brief fails to: (1) identify, for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function under 35 U.S.C. 112, sixth paragraph, and/or (2) set forth the structure, material, or acts described in the specification as corresponding to each claimed function with reference to the specification by page and line number, and to the drawings, if any, by reference characters (37 CFR 41.37(c)(1)(v)).
5. ☐ The brief does not contain a concise statement of each ground of rejection presented for review (37 CFR 41.37(c)(1)(vi)).
6. ☐ The brief does not present an argument under a separate heading for each ground of rejection on appeal (37 CFR 41.37(c)(1)(vii)).
7. ☐ The brief does not contain a correct copy of the appealed claims as an appendix thereto (37 CFR 41.37(c)(1)(viii)).
8. ☐ The brief does not contain copies of the evidence submitted under 37 CFR 1.130, 1.131, or 1.132 or of any other evidence entered by the examiner and relied upon by appellant in the appeal, along with a statement setting forth where in the record that evidence was entered by the examiner, as an appendix thereto (37 CFR 41.37(c)(1)(ix)).
9. ☐ The brief does not contain copies of the decisions rendered by a court or the Board in the proceeding identified in the Related Appeals and Interferences section of the brief as an appendix thereto (37 CFR 41.37(c)(1)(x)).
10. ☐ Other (including any explanation in support of the above items):

Y. Lee
Primary Examiner
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re the Application

Inventor : **Francois Martin**
Application No. : **09/899,878**
Filed : **July 6, 2001**
For : **ADAPTIVE PRE-PROCESSING METHOD FOR
MOTION ESTIMATION**

APPEAL BRIEF

On Appeal from Group Art Unit 2613

Date: June 14, 2005

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Certificate of Mailing Under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to MAIL STOP APPEAL BRIEF-PATENT, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA. 22313 on June 14, 2005.

Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)


(Signature and Date)

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I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the present application, U.S. Philips Corporation, and not the party named in the above caption.

II. RELATED APPEALS AND INTERFERENCES

With regard to identifying by number and filing date all other appeals or interferences known to Appellant which will directly effect or be directly affected by or have a bearing on the Board's decision in this appeal, Appellant is not aware of any such appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-7 have been presented for examination. All of these claims are pending, stand finally rejected, and form the subject matter of the present appeal.

IV. STATUS OF AMENDMENTS

In response to the patent application filed July 6, 2001, a first Office Action was mailed on July 15, 2004. Claims 1 and 5-7 were rejected under 35 USC §102(e) as being anticipated by Song (USP no. 6,560,371) and claim 2-4 were rejected under 35 USC §103(a) as being unpatentable over Song in view of Hampson ("Motion Estimation in the Presence of Illumination Variations").

On October 13, 2004, a response to the first Office Action was timely filed which presented arguments why the references cited failed to anticipate or render obvious the claimed invention. Amendments were made to the claims to more clearly state the

invention and to correct errors in form. On December 21, 2004, a second and Final Office Action was entered, which again rejected claims 1-7 as being anticipated by Song and rendered unpatentable over Song in view of Hampson. On February 7, 2005, a response to the second and Final Office action was filed, which amended claims 5 and 6 to correct errors in form and presented additional arguments as to why the claimed invention was not anticipated or rendered obvious by the recited references.

An Advisory Action was mailed on February 18, 2005, which maintained the reason for rejecting the claims. The Advisory Action stated that the amendments made to the claims were entered for the purposes of an appeal.

A Notice of Appeal, with appropriate fee, was filed on March 11, 2005. This Appeal Brief is being filed within two (2) months after the filing of the Notice of Appeal.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention provides a method and system for processing an input digital video signal by computing a histogram of original values associated with pixels belonging to a video frame of the digital signal (p. 1, lines 28-29); the histogram values are obtained from at least the luminance of the pixels in the video frame (p. 2, line 6), analyzing the resultant histogram values to obtain histogram parameters and correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values (p. 2, lines 1-4). Figures 2a and 2b illustrate an example of a shift of the histogram values of pixel luminance values when a flash or a fade, respectively, occurs. In the former case, the histogram is shifted toward higher luminance and in the latter case, the histogram is shifted toward the lower luminance. (p. 4, lines 16-24). In one

aspect of the invention, the correction step determines the parameters of the luminance histogram of a current frame and performs a translation to correct the pixel values in the current frame (p. 3, lines 1-8 and figure 3a). A filtering step is optionally performed (see p. 6, lines 20-21).

With regard to independent claim 1, this claim recites the steps of computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame (p. 1, lines 28-29 and p. 2, line 6), and analyzing the resultant histogram values to obtain histogram parameters and correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values (p. 2, lines 1-4).

Independent claim 5 recites a method for pre-processing a video signal wherein the preprocessing method recites the steps of computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame (p. 1, lines 28-29 and p. 2, line 6), and analyzing the resultant histogram values to obtain histogram parameters and correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values (p. 2, lines 1-4).

Independent claim 6 recites a video encoder including means for computing a histogram, means for analyzing the histogram and means for correcting the original pixel values. An integrated circuit structure supporting the means plus function language of claim 6 may be found on p. 6, lines 25-31 of the instant specification.

Independent claim 7 recites a computer program comprising instructions for causing a video encoder to carry out the method described in claim 1. Computer

programming instructions supporting the subject matter recited in claim 7 may be found on p. 6, lines 25-31 of the instant specification.

VI. GROUND FOR REJECTION TO BE REVIEWED ON APPEAL

The issues in the present matter are whether:

1. Independent claim 1 and claims 5-7 are anticipated under 35 USC §102(e) by Song; and
2. Dependent claims 2-4 are obvious under 35 USC §103(a) in view of the combination of Song and Hampson.

VII. ARGUMENTS

I. Rejection of Claims 1 and 5-7 under USC §102(e) as being anticipated by Song.

The Final Office Action states that "Song in Figures 1, 2, 10 and 11, discloses the same method of processing an input digital video signal 110 comprising video frames so as to provide a modified digital video signal 120 for a motion estimation step 140 as specified in claim 1." (see item 3, p. 2, Final Office Action). The Advisory Action states that "column 11 of Song explicitly discloses the concept of histogram." (see first paragraph, p. 2, Advisory Action).

Difference Between the Claimed Invention and the Primary Reference – Song

The instant invention, as recited in claim 1, which is typical of the remaining independent claims, discloses a method for determining a correction value that may be applied to original pixel values to compensate for changes in the values of pixels in a video frame.

Song discloses an apparatus and method using M-ary pyramid decomposition in combination with N-scale tiling to reduce the computational complexity in determining motion vectors. Song describes the M-ary pyramid decomposition with regard to Figure 3 in col. 5, lines 66- col. 6, lines 32, which state in part, "the mean pyramid comprises a plurality of levels 310, 320, 330. The lowest level 310 is an original image frame ... having ... pixels 311. ... [A] next higher level is generated by lowpass filtering and downsampling [of pixels at the lower level]... thereby generating a single pixel value 321 in level 320 [at this higher level]. In turn, ... pixels 322a [are] used to generate a single pixel value 331 in level 330 [a next higher level] ... In a mean pyramid, the parent pixel value is derived by taking the average of its four children pixels." Song further teaches that video blocks may be tiled using 8x8, 4x8 and 8x4 blocks. The blocks may be processed using the M-ary method described.

Thus, Song teaches progressively combining pixels to obtain a single pixel representative of the pixels in a lower level. More specifically, Song teaches that a single pixel may be obtained as the combination (i.e., an average) of lower level pixels.

Song Fails to Anticipate the Claimed Invention

The Advisory Action, in maintaining the rejection of the claims, states that "column 11 of Song explicitly discloses the concept of a histogram."

“Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984) (emphasis added).

Contrary to the position stated in the Advisory Action, Song fails to disclose each and every element recited in claim 1. With regard to the reference to column 11, a careful reading of this section of the Song patent reveals that Song teaches using a histogram to perform a comparison of the different tiling methods (see col. 11, lines 54-57, which state "one can set up a histogram to gauge the contribution of different titling scales with respect to the motion vectors that are ultimately selected for the current blocks of a frame."). Thus, Song teaches performing a histogramming to gauge the contribution of different tiling scales and fails to teach correction processing of the luminance information using a histogram as recited in the claim 1.

Accordingly, Song cannot be said to anticipate claim 1 because Song does not disclose each and every element claimed.

In view of the above, applicant submits that claim 1 is patently distinguishable and allowable over the teaching of Song.

With regard to independent claims 5-7, these claims recite devices and programs, respectively, for executing the processing of claim 1 and have been rejected for the same reason used to reject claim 1. Accordingly, for the remarks made with regard to claim 1, which are reassert, as if in full herein, applicant submits that these claims are also not anticipated by Song.

In view of the above, applicant submits that all of the above referred-to claims are patentable over the teachings of Song and respectfully requests this honorable board reverse the rejection of the claims.

II. Rejection of Claims 2-4 Under 35 USC §103(a)
in View of Song and Hampson

Claims 2-4 stand rejected as being obvious under 35 USC §103(a) in view of the combination of Song and Hampson.

Claims 2-4 Depend from
Allowable Base Claims

Claims 2-4 depend from independent claim 1, which has been shown to include subject matter not disclosed by and allowable over Song. Applicant respectfully submits that claims 2-4 are allowable at least for their dependence upon an allowable base claim, without even contemplating the merits of the dependent claims for reasons analogous to that held by In re Fine, 837 F.2d 1071, 5 USPQ 2d 1596 (Fed. Cir. 1988) wherein if an independent claim is non-obvious under 35 U.S.C. §103(a), then any claim depending therefrom is non-obvious. In this case, claims 2-4 depend from claim 1, which has been shown to not be anticipated by Song, and, hence, these claims contain subject matter not disclosed by the combination of Song and Hampson.

In view of the above, applicant submits that all of the above referred-to claims are patentable over the teachings of Song and Hampson and respectfully requests this honorable board reverse the rejection of the claims.

VIII. CONCLUSION


In view of the law and facts stated herein, it is respectfully submitted that the teachings of the primary reference fails to anticipate the claimed invention and the burden of showing that Song discloses all of the features, expressly or inherently, recited in the claims has not been met. In particular, Song neither expressly nor inherently teaches "computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame," or "analyzing the histogram to provide histogram parameters," or "correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values," as is recited in the independent claims.

In view of the above analysis, it is respectfully submitted that the referenced teachings, whether taken individually or in combination, fail to anticipate or render obvious the subject matter of any of the present claims. Therefore, reversal of all outstanding grounds of rejection is respectfully solicited.

Respectfully submitted,

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Date: 6/14/05


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IX. CLAIMS APPENDIX

The claims on appeal are as follows:

1. A method of processing an input digital video signal comprising video frames so as to provide a modified digital video signal for a motion estimation step said processing method comprises the steps of:
 - computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame,
 - analyzing the histogram to provide histogram parameters, and
 - correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values, which yields the modified digital video signal to be used by the motion estimation step.
2. A method of processing as claimed in claim 1, wherein the analyzing step comprises a sub-step of calculating a translation parameter of the histogram, and the correcting step is adapted to derive the modified pixel values from a sum of the original pixel values and the translation parameter.
3. A method of processing as claimed in claim 1, the analyzing step comprises a sub-step of calculating a width variation parameter of the histogram, and the correcting step is adapted to derive the modified pixel values from a product of the original pixel values and the width variation parameter.
4. A method of processing as claimed in claim 3, it comprises a step of filtering the modified digital video signal so as to provide a filtered modified digital video signal for the motion estimation step.
5. A method of encoding an input digital video signal comprising the steps of:
 - pre-processing the input digital video signal so as to provide a modified digital video signal,

- estimating motion from the modified digital video signal so as to provide motion vectors,
 - compressing the input digital video signal from the motion vectors so as to provide an encoded digital video signal,
- wherein the pre-processing step comprises the sub-steps of :
- computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame,
 - analyzing the histogram to provide histogram parameters, and
 - correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values, which yields the modified digital video signal to be used by the motion estimating step.

6. A video encoder comprising :

- a pre-processing device for receiving an input digital video signal and for supplying a modified digital video signal,
 - a motion estimator for receiving the modified digital video signal and for supplying motion vectors,
 - a data compressor for receiving the input digital video signal and for deriving an encoded digital video signal from the motion vectors,
- wherein the pre-processing device comprises :
- means for computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame,
 - means for analyzing the histogram in order to provide histogram parameters, and
 - means for correcting the original pixel values on the basis of the histogram parameters and adapted to provide modified pixel values, which yields the modified digital video signal for the motion estimator.

7. A computer program product for a video encoder that comprises a set of instructions, which, when loaded into the video encoder, causes the video encoder to carry out the processing method as claimed in claim 1.